

ODC ELIMINATION PLAN USAG HEIDELBERG

Contract

USAREUR-Wide Ozone Depleting Chemical
(ODC) Elimination Plans
US Army Corps of Engineers
DACA90-97-D-0015, DO 0014
BH Project 1793
December 2000



US Army Corps of Engineers
Europe District

EXECUTIVE SUMMARY

The 411th Base Support Battalion (BSB), provides support for the communities of Heidelberg, Schwetzingen and Germersheim. Within these three areas the 411th BSB's facilities include: Patton, Campbell, Hammonds, and Tompkins Barracks; Nachrichten Kaserne, which is the location of the U.S. Hospital; the Heidelberg Golf Course, the Community Support Center; as well as, the family housing areas of Mark Twain Village and Patrick Henry Village.

Responsibility for eliminating Class I Ozone Depleting Chemicals (ODCs) in the 411th BSB ultimately lies with the commander, however the ODC Elimination Team will carry out the day-to-day responsibilities of this plan. The ODC Team has been formed and includes nine members. The team's mission and objectives have been established and they are committed to eliminating the 411th BSB's dependence on Class I ODCs by 1 October 2003.

The 411th BSB were inventoried for Class I ODCs during June of 2000. Class I ODCs include halons, chlorofluorocarbons (CFCs), and certain solvents. In the June 2000 ODC inventory a total of ninety-four refrigeration units have been identified as containing Class I ODCs. Of these, eighty-eight units contain R12 and five units contain R502, and one unit contains both R12 and R502.

Halons are commonly found in fire suppression or fire extinguishing systems. All halon systems at the 411th BSB have been removed. They were replaced with ODC-free systems such as sprinklers, dry chemical systems, or hand-held fire extinguishers.

Class I CFCs are utilized in refrigeration and air conditioning systems. The CFC inventory included all serviced Class I CFC equipment. Identified Class I CFCs were R12 and R502. All equipment containing R12 or R502 that requires service or have been serviced with additional amounts of these materials is deemed out of compliance and is considered eligible for environmental funds.

Six units were identified as needing replacement, repair or removal; costs for replacement of these units are estimated at \$9,796. These six units are identified in Tables 6-1 and 6-2.

Due to the scope of this project, all hermetically sealed equipment such as home refrigerators, or window air conditioners, was excluded from the inventory. No leakage is expected here. Due to its small size this type of equipment will not be "topped-off" but has to be replaced as it breaks down. GSA vehicles and ODC equipment owned by AAFES and DeCA are also not included in this inventory. AAFES, DeCA and GSA have their own programs for managing their Class I ODC equipment.

Class I solvents, including carbon tetrachloride and 1,1,1 trichloroethane (methyl chloroform) are excluded from the June 2000 inventory. Production of these solvents was banned during the mid-90s and since they only have a shelf life of six months, any stored solvent is no longer usable.

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1.0 INSTALLATION

“Army Installation/Regional Support Commanders are responsible for ensuring that Class I ODCs, as defined by section 602(a) of Title VI of the Clean Air Act, are eliminated in all facilities on their installations by the end of fiscal year 2003.”
ASA (IL&E) Memorandum 13 Feb 1996

The military community in Heidelberg is home for Headquarters, U.S. Army Europe, and 7th Army; Headquarters, Land Forces, Central Europe; and several other major commands as well as the 26th Army Support Group (ASG). The 411th BSB includes the communities of Heidelberg, Schwetzingen and Germersheim. All of these facilities were surveyed for Class I CFCs and halons.

The following installation information is provided in this chapter:

- Table 1-1: Installation host and tenant organizations.
- Figure 1-1: Installation maps.

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Table 1-1: List of 411th BSB Organizations

MACOM	Unit	Number
USAREUR	1st Personnel Command	379-7662
MEDCOM	100th Medical Detachment (Vet)	371-2703
USAREUR	181st Signal Company	370-7344
USAREUR	207th Aviation Company	373-8990
USAREUR	208th Finance support Unit	379-7634
USAREUR	26 th Area Support Group	373-1300
USAREUR	266th Theater Finance Command	370-7977
MEDCOM	30 th Medical Brigade	371-2233
USAREUR	320th Engineer Company	322-9055
USAREUR	4th Plt., 249th Eng. Det. (Prime Power)	379-7753
USAREUR	411th Base Support Battalion	373-1500
USAREUR	43d Signal Battalion	371-1440
USAREUR	5th MP Detachment (CID)	370-7941
USAREUR	529th MP Company	373-8283
USARC	7th ARCOM	370-7778
MEDCOM	89 th Medical Detachment (Dental)	371-2036
USAREUR	A Co., 302d MI	373-5067
USAREUR	Contracting Command	375-8705
USAREUR	Cryptological Support Group	370-6789
MEDCOM	DENTAC	371-2745
USAREUR	Det. A, 208th Finance Battalion	379-7744
USAREUR	Det. B, 510th PSB	370-8925
USAREUR	HHC, 1st Personnel Command	379-6123
USAREUR	HHC, 26th ASG	373-1610
USAREUR	HHC, 266th TFC	379-6556
MEDCOM	HHC, 30th Medical Brigade	371-2550
USAREUR	HHC, LANDCENT	373-8373
MEDCOM	HHC, MEDDAC	371-2700
	HHC, USAREUR/7 th Army	370-7112
USAREUR	HHC, V Corps	373-6223
USAREUR	HQ, AMC Europe	370-8431
MEDCOM	MEDDAC	371-2838
USAREUR	USAREUR Band	379-7834
MEDCOM	V Corps (STB)	373-6208
USAREUR	503d Chemical Detachment	370-5478
USAREUR	66 th MI Det.	370-7215
MEDCOM	93d Dental Det.	371-2642

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Table 1-1: List of 411th BSB Organizations (Cont.)

MACOM	Unit	Number
USAREUR	A Co., 527 th MI Battalion	347-3347
USAREUR	AFOD	373-6201
USAREUR	Defense District Depot Europe	378-3303
USAREUR	HQ, 2d Region CID	375-6131

Figure 1-1: Installation Maps of the 411th BSB

2.0 TEAM

“Installation Commanders are responsible for the elimination of all ODC use on their installations, including that of tenants, with the exceptions of the Army-Air Force Exchange Service and the Defense Commissary Agency.”
ACSIM Memorandum 3 July 1997

Although the Installation Commander holds final responsibility for Class I ODC removal, the day-to-day responsibility rests with the members and Chair of the ODC Elimination team. The installation commander’s commitment to removal of Class I ODCs within the 411th BSB is represented by the buy-in statement on the next page. The team should meet regularly to identify issues and actions, as well as determine individual responsibilities.

The 411th BSB ODC Team includes nine members. Team members include representatives from Environmental, DOL, DPW, DPW-O&M, Fire and Emergency Services, DPW-CSO, Real Property, S-3 Section, as well as a representative from BOS. Members of the team will bring their organizational expertise and a commitment to eliminating Class I ODCs within the 411th BSB.

The main goals for the ODC team are the implementation of ODC regulations and policy, maintenance of ODC recovery and logistics procedures, the development of ODC management practices (including the upkeep of the ODC plan) and the identification of resources needed to execute the ODC elimination plan.

The following information pertaining to the ODC Elimination Team is included in this chapter:

- Installation Commander’s Buy-in Statement
- Table 2-1: ODC Team Roster
- ODC Team Mission Statement

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Commander's Buy-in Statement

DEPARTMENT OF THE ARMY
HEADQUARTERS, 411TH BASE SUPPORT BATTALION
UNIT 29245
APO AE 09102

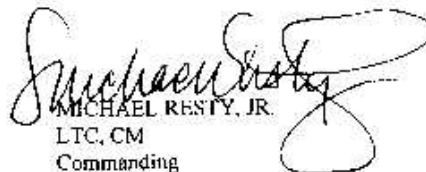
AEUSG-HD-PW-ENV (190)

11 6 MAY 2000

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Ozone-Depleting Chemicals

1. As a result of actions by the United States Congress and parties to the Montreal Protocol, ozone-depleting chemicals such as halons and chlorofluorocarbons are no longer produced. Congress, through public law, the President, by executive order and the Environmental Protection Agency, by regulatory action have further limited the procurement and use of these chemicals. I fully support these actions.
2. The Heidelberg Military Community uses refrigeration equipment that relies on chlorofluorocarbons. In January 1999, the Army reiterated its policy to eliminate the use of these by the end of Fiscal Year 2003. As recycled stocks of the chemical diminish, the need to plan now for their absence becomes increasingly important. Failure to do so could negatively impact our quality of life.
3. I ask the leaders of the Heidelberg Military Community to assist the community's Ozone Depleting Chemical Elimination Team in their efforts to meet the Army's objectives. Because resources are limited and solutions are still evolving, a well-coordinated and carefully researched plan is essential. Success in eliminating these chemicals will require a team effort.
4. Should you have any questions please feel free and contact the Environmental Program Manager Mr. Welch, email: wejchd@hshdpw.heidelberg.army.mil


MICHAEL RESTY, JR.
LTC, CM
Commanding

DISTRIBUTION:

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Table 2-1: 411th BSB, Heidelberg ODC Elimination Team

Name	Unit	Function	Phone (DSN)	Civilian	e-mail
Daniel Welch	Environmental	Chair	370-7600	06221-57-7600	Welchd@bsbdpw.heidelberg.army.mil
Edward Philmon	DOL	Supply	370-7720	06221-57-7720	Philmone@26asg.heidelberg.army.mil
MAJ Williamson	411 th BSB, DPW	DPW	370-1560	06221-57-1560	Jeffrey.Williamson@bsbdpw.heidelberg.army.mil
Juergen Baller	411 th BSB, DPW-O&M	O&M	370-8166	06221-57-8166	Juergen.baller@bsbdpw.heidelberg.army.mil
Otto Beck	Fire & Emergency Services	Fire	373-5001	06221-17-5001	Otto.beck@bsbdpw.heidelberg.army.mil
Rolf Stadler	411 th BSB, DPW-CSO	Utilities	370-6903	06221-57-6903	Rolf.stadler@bsbdp2.heidelberg.army.mil
Brian Parson	BOS Contractor	Servicing POC	N/A	06221-3315100	Brian.parson@hsg.de
Jim Kirschenman	Real Property	Real Property	370-6016	06221-57-6016	Jim.kirschenman@bsbdpw.heidelberg.army.mil
Chet Gray	411 th BSB S-3	Unit Coordination	373-1530	06221-17-15300	Grayc@26asg.heidelberg.army.mil

411th BSB ODC Team Mission Statement*Mission:*

Through responsible management of all ODC assets, facilities modification and energy efficiency programs, and environmental and real property OMA resources, 411th BSB will completely eliminate its dependency on Class I ODCs.

Objectives:

411th BSB will retrofit, replace, or otherwise retire all air conditioning and refrigeration equipment using chlorofluorocarbon refrigerant by the end of fiscal year 2003.

411th BSB will recover all chlorofluorocarbon refrigerants installed in retired air conditioning and refrigeration equipment and turn them in to the Army ODC Reserve.

411th BSB will minimize the impact on the operations and maintenance account of all ODC retrofits, replacements, or other conversions by using to the maximum extent possible resourcing options available through facilities' modernization and energy efficiency programs.

3.0 INVENTORY

“These responsibilities include the inventory of Installation owned equipment and facilities occupied by Army and non-Army tenant organizations.”

ASA (IL&E) Memorandum 13 Feb 1996

The 411th BSB was surveyed for all Class I ODCs that include halons, Chlorofluorocarbons (CFCs), as well as certain solvents. Class I Halons are commonly found in fire suppression or fire extinguishing systems and can be identified as Halon-1202, 1211, 1301, or 2402. Class I CFCs are utilized in refrigeration and air conditioning systems and are identified by a variety of numbers (see Table 4-1). Class I solvents such as carbon tetrachloride, and 1,1,1 trichloroethane (methyl chloroform) are excluded from the inventory. Production of these solvents was banned during the mid-90s and since they only have a shelf life of six months, any stored solvent will no longer be usable. Alternatives to Class I ODCs are hydrochlorofluorocarbons (HCFCs) which do not have as great an impact on the ozone layer. A common HCFC is R22, which is currently classified as a Class II ODC. Guidelines from the European Community will require the phase out of virgin HCFCs by the year 2010, which will include R22.

The results of the June 2000 ODC Survey are shown in Table 3-1. This inventory includes all refrigeration equipment surveyed that contained Class I CFCs, Class II CFCs and alternative refrigerants. Equipment noted in this inventory as containing Class II CFCs and alternative refrigerants is provided as a courtesy and cannot be considered as a complete inventory.

3.1 HALONS

The 411th BSB has certified that Halon Fire Suppression systems and Halon Fire Extinguishers were dismantled and disposed in 1995 in accordance with ODC regulations. This statement is provided in Figure 3-1. Halon systems were replaced by ODC-free systems such as sprinkler, dry chemical systems, or hand-held fire extinguishers.

3.2 CFCs

The CFC equipment inventory included all Class I CFCs. Identified Class I CFCs were R12 and R502. The results of the inventory are shown in Table 3-2. All hermetically sealed equipment such as home refrigerators, window air conditioners, drinking fountains and some types of drink dispensers are excluded from the inventory because leaked or discharged CFCs cannot easily be replaced (“topped-off”) in these systems. This equipment will be replaced as soon as it fails. GSA vehicles and CFC equipment owned by AAFES and DeCA are also not included in this inventory. AAFES and GSA have their own programs for managing Class I ODC equipment. DeCA is actively replacing Class I ODCs as their equipment requires repair or replacement.

3.3 HCFC R22

An HCFC inventory was not conducted for the 411th BSB. Equipment containing HCFCs (e.g. R22) is out of the scope of the plan because R22 is not considered Class I ODC. As surveyors inventoried equipment, some equipment containing R22, as well as other HCFCs,

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was noted (see Table 3-1). Equipment containing R22 noted on this inventory is not complete; not all equipment with R22 was surveyed. This data should be used as a starting point when R22 is phased out.

Table 3-1: 411th BSB June 2000 ODC Survey

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Figure 3-1: Fire and Emergency Services Statement

DEPARTMENT OF THE ARMY
411TH BSB-HD, DIRECTORATE OF PUBLIC WORKS
Fire & Emergency Services
UNIT 29245, APO AE 09102

AEUSG-IID-PW-EFP (420-90a) 5 June 2000

MEMORANDUM FOR RECORD

SUBJECT: Use of Halon Fire Suppression Systems

1. Halon Fire Suppression Systems are not in use. The Halon was disposed 1995 IAW ODC regulations.
2. Point of contact is Mr. Weiler, Fire Prevention Inspector at DSN 373-5001, Fax 373-5025, BLDG. 209, Heidelberg Army Airfield (HAAF).



JOHANNES WEILER
Fire Prevention Div.

Table 3-2: 411th BSB Class I ODC Inventory

4.0 RULES AND REGULATIONS

“No activity will be allowed which intentionally vents any Class I or Class II ozone-depleting substances into the air except as specifically authorized in these final governing standards or by DOD directives.”

Final Governing Standards for Germany - November 1994

In accordance with DOD Directive 6050.16, *DOD Policy for Establishing and Implementing Environmental Standards at Overseas Installations*, environmental programs are managed in accordance with the Final Governing Standards (FGS) developed by the DOD for its operations in that country. The FGS are developed by a process of comparing U.S. regulations (as found in the Overseas Environmental Baseline Guidance Document) to Host Nation regulations and selecting the criteria that is more protective of human health or the environment.

However, the Supplemental Agreement to the Status of Forces Agreement (SOFA) with Germany requires DOD to apply German law to their use of an installation (except on internal matters with no effect on others). Furthermore, the FGS for Germany was produced in 1994 and is in the process of being updated. Thus, German regulations concerning ODCs were researched and are generally considered the compliance standard upon which this ODC Elimination Plan was prepared.

Regulations for the United States are not directly applicable to the 411th BSB. They are provided herein for informational purposes, though, since Army policy is that the intent of U.S. law respecting environmental protection on DOD installations overseas be followed. To the extent possible, however, Army and DOD standards remain a requirement for the U.S. Army operating overseas.

All of these requirements are summarized below. An evaluation of current compliance with these requirements is included where noted.

4.1 Final Governing Standards - Germany

Section 2-5 of the FGS for Germany, dated November 1994, prohibits the direct emission of any Class I or Class II ODCs to the atmosphere, except for actual emergency use of fire extinguishing materials. It requires that only fully trained persons having the appropriate equipment perform work on equipment containing ODCs. Class I and Class II ODCs are listed in Table 4-1.

Based on interviews conducted during the site survey at the 411th BSB, skilled contractors who are trained in using the appropriate technical equipment service all of the stationary air conditioning and refrigeration equipment.

Additional, specific requirements of the FGS apply to the asterisked (*) compounds in Table 4-1 and products containing them. All are Class I ODCs except for R22, which is a Class II ODC.

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Table 4-1: FGS-Regulated ODCs

HC#	NAME
CLASS I ODCs	
CFC-11 (R 11)*	Trichlorofluoromethane
CFC-12 (R 12)*	Dichlorodifluoromethane
CFC-13 (R 13)*	Chlorotrifluoromethane
CFC-111	Pentachlorofluoroethane
CFC-112 (R 112)*	Tetrachlorodifluoroethane
CFC-113 (R 113)*	Trichlorotrifluoroethane
CFC-114 (R 114)*	Dichlorotetrafluoroethane
CFC-115 (R 115)*	Chloropentafluoroethane
CFC-211	Heptachlorofluoropropane
CFC-212	Hexachlorodifluoropropane
CFC-213	Pentachlorotrifluoropropane
CFC-214	Tetrachlorotetrafluoropropane
CFC-215	Trichloropentafluoropropane
CFC-216	Dichlorohexafluoropropane
CFC-217	Chloroheptafluoropropane
R-500	R-500
R-502	R-502 (51.2% R115*; 48.8% R22)
HALON-1202	Dibromodifluoromethane
HALON-1211*	Bromochlorodifluoromethane
HALON-1301*	Bromotrifluoromethane
HALON-2402*	Dibromotetrafluoroethane
MB	Methyl Bromide
Carbon Tetrachloride*	Tetrachloromethane
Methyl Chloroform*	Trichloroethane
CLASS II ODCs	
HCFC-21	Dichlorofluormethane
HCFC-22 (R 22)*	Chlorodifluormethane
HCFC-31	Chlorofluormethane
HCFC-121	Tetrachlorofluoroethane
HCFC-122	Trichlorodifluoroethane
HCFC-123	Dichlorotrifluoroethane
HCFC-124	Chlorotetrafluoroethane
HCFC-131	Trichlorofluoroethane
HCFC-132	Dichlorodifluoroethane
HCFC-133	Chlorotrifluoroethane
HCFC-141	Dichlorofluoroethane
HCFC-142	Chlorodifluoroethane
HCFC-221	Hexachlorofluoropropane
HCFC-222	Pentachlorodifluoropropane
HCFC-223	Tetrachlorotrifluoropropane
HCFC-224	Trichloropentafluoropropane

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TABLE 4-1: FGS-Regulated ODCs (Cont.)	
CLASS II ODCs (Cont.)	
HCFC-225	Dichloropentafluoropropane
HCFC-226	Chlorohexafluoropropane
HCFC-231	Pentachlorofluoropropane
HCFC-232	Tetrachlorodifluoropropane
HCFC-233	Trichlorotrifluoropropane
HCFC-234	Dichlorotetrafluoropropane
HCFC-235	Chloropentafluoropropane
HCFC-241	Tetrachlorofluoropropane
HCFC-242	Trichlorodifluoropropane
HCFC-243	Dichlorotrifluoropropane
HCFC-244	Chlorotetrafluoropropane
HCFC-251	Trichlorofluoropropane
HCFC-252	Dichlorodifluoropropane

It is prohibited to use refrigerants containing more than 1 percent of the substances identified above with an asterisk; however, the following may be used until taken out of service:

- Products containing 5 kg or more of these refrigerants in a closed circulation system manufactured before 1 January 1992.
- Mobile refrigeration systems containing 5 kg or more of these refrigerants in a closed circulation system manufactured before 1 January 1994.
- Products containing less than 5 kg of these refrigerants in a closed circulation system manufactured before 1 January 1995.
- Products containing refrigerants having more than 1 percent of only R 22 manufactured before 1 January 2000.

The items listed above may be serviced with the original type of refrigerant until the German Federal Environmental Agency publishes an alternative refrigerant with a lower ozone-depleting potential.

Notwithstanding the above, the management of CFCs and halons, which are used in military aircraft or tactical vehicle systems, shall be accomplished in accordance with the appropriate DOD directive.

4.2 U.S. Regulations

As stated above, the U.S. regulations are presented for information purposes only. Army and DOD policies noted at the end of this section, however, should be applied to the extent possible.

4.2.1 Clean Air Act - Section 608

Section 608 of the Clean Air Act contains a number of rulings on the operation and maintenance of facility air conditioning and refrigeration equipment. Included in these rulings are the following requirements:

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- No venting of any refrigerant or halon during the service, maintenance, repair, or disposal of air conditioning, refrigeration, and fire suppression equipment.
- All technicians who service air conditioning and refrigeration equipment must be EPA certified.
- Only EPA-certified technicians may purchase CFCs.
- Only EPA-approved recovery/recycling equipment may be used, and any operation using such equipment must be EPA certified.
- Air conditioning and refrigeration equipment, which are being disposed of, must first have their ODCs safely removed.
- Substantial leaks in air conditioning and refrigeration equipment with a charge of 50 pounds (23Kg) or more must be repaired.

No military or tenant personnel have been identified as providing maintenance support to this equipment. No military technicians are therefore liable to the training and certification requirements of Section 608 of the Clean Air Act.

Leak Limits

40 Code of Federal Regulations (CFR) 82 specifically addresses the Section 608 leak restrictions. It limits the amount of ODC refrigerant a piece of equipment may annually leak as presented in the table below. New, lower, permissible leak rates have been proposed and are expected to be adopted before the end of 2000. These are also indicated below. At the time of the survey, no air conditioning and refrigeration equipment at the 411th BSB had a capacity refrigerant charge of more than 50 pounds (23Kg), however, so this is not applicable at this site.

Table 4-2: Annual Leak Limits

System	Old Leak Rate*	New Leak Rate
Industrial Process Refrigeration	35%	20%
Commercial Refrigeration (Old)	35%	15%
Commercial Refrigeration (New)	35%	10%
Comfort Cooling (Old)	15%	10%
Comfort Cooling (New)	15%	5%
Other Appliances (Old)	15%	10%
Other Appliances (New)	15%	5%

* 40 CFR 82

4.2.2 Clean Air Act – Section 609

By authority of this section, EPA has established standards for the servicing of motor vehicle air conditioners. Included in these rulings are the following requirements:

- Motor vehicle air conditioners' refrigerant must be recovered or recycled.
- All technicians who service motor vehicle air conditioners must be EPA certified.
- Only EPA certified technicians may purchase ODC refrigerants.

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- Only alternative refrigerants approved by the EPA's Significant New Alternatives Policy (SNAP) program may be used when retrofitting or replacing motor vehicle air conditioners.

Army personnel within the 411th BSB that service tactical motor-vehicle air conditioners and halon fire extinguishers are exempt from the requirements of this section. Army personnel should have received training that satisfies the requirements of this section.

4.2.3 Public Law 102-484 – Section 326

This is the Defense Authorization Act for FY 1993, in which DOD is prohibited from awarding any contract after June 1993 that requires the use of a Class I ODC. This applies to purchase of equipment, as well as service contracts.

If there is no suitable substitute available for the ODC, however, such contracts may be awarded with signed approval from a General Officer or Senior Executive Service (SES), which is called a Senior Approval Official (SAO) approval. All DOD approvals are annually compiled by each Service and submitted to Congress. An SAO approval is not required if previously recovered CFCs are being used, even those provided to the servicing contractor as government furnished equipment (GFE). No SAO approvals have been submitted for the 411th BSB.

4.2.4 Army ODC Policy

Current Army policy on ODC elimination in their facilities is described in the enclosure to the ACSIM policy memo of 3 July 1997, *"Elimination of the Dependency on Ozone-Depleting Chemicals (ODCs) in Army Facilities."* The key points found therein are listed below:

- Installation Commanders are responsible for ODC elimination.
- Tenant Commanders are responsible for complying with host ODC policies and supporting host ODC elimination efforts.
- Class I ODCs must be eliminated from all facilities on Army installations by the end of FY 2003.
- Installations may not contract for the use of Class I ODCs.
- All Class I ODCs installed in Army facilities must be recovered.
- ODC alternatives must first be approved by the EPA Significant New Alternatives Policy (SNAP) program and receive toxicity clearance from the Army Surgeon General before used in Army facilities.

Several alternative refrigerants were identified at the 411th BSB during the ODC survey. These consisted of R22, R134A, R404A, R408A, and R409A. The alternatives R22, R134A, R404A, and R408A have received EPA SNAP approval, R409A does not. The most current SNAP information can be found at <http://www.epa.gov/ozone/title6/snap/snap.html>. As of August 2000 the alternative refrigerants R22, R134A, R401A, R401B, R402A and R404A have received toxicity clearance from the Army Surgeon General for the following uses: facilities air-conditioning and refrigeration, refrigeration systems and commercial refrigeration. The most current information on Army toxicity clearances can be found at <http://chppm-www.apgea.army.mil>.

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4.3 German and European Regulations

Production, trade, use and replacement of ODCs in Germany are regulated by the *Regulation Banning CFC and Halon (FCKW-Halon-Verbots-Verordnung)*, dated 6 May 1991, and the corresponding European Regulation, the *Council Regulation No. 3093/94 of 15 December 1994 on Substances that Deplete the Ozone Layer*.

4.3.1 FCKW-Halon-Verbots-Verordnung

The German Regulation refers to the same substances and products identified with an asterisk in Table 4-1, plus methyl bromide and hydrobromofluorocarbons. It generally prohibits the use of the listed chemicals. Specific requirements for operation, maintenance, and decommissioning are described below:

- It is prohibited when operating, maintaining or decommissioning products containing refrigerants or fire extinguishing materials to let these substances evaporate into the atmosphere.
- For providers of listed substances it is mandatory to take these back after decommissioning, or to guarantee the taking back of the substances via a third party.
- Maintenance and decommissioning of units containing refrigerants or fire extinguishing substances and taking back of these substances shall only be performed by skilled personal having the appropriate technical equipment.
- Records about type and quantities of taken back substances shall be written down and kept for at least three years, to be presented to the Authorities if desired.

Prohibitions on new units containing ODCs are described below.

- On 1 January 1992, the use of listed chemicals in new units containing more than 5 kg of refrigerants, foamed materials, solvents, and fire extinguishing halons was prohibited.
- On 1 January 1995, the use of listed chemicals in new units containing less than 5 kg of refrigerants was prohibited.
- On 1 January 2000, use of R22 in new units was prohibited.

According to the Regulation, maintenance and decommissioning of cooling units shall only be performed by skilled and trained personnel with the required technical equipment. However, there are no special procedures for approval of this type of work. Local authorities are typically satisfied if work is performed under the guidance of a skilled *Klima- und Kälteanlagenbauer*.

The 411th BSB personnel who are responsible for the servicing all of the CFC equipment within the 411th BSB are skilled professionals and they use the appropriate technical equipment to service equipment with Class I ODCs.

Recovered ODCs must be properly disposed of in accordance with the German Recycling Economy/Waste Law (*Kreislaufwirtschafts-/Abfallgesetz*). In general, this consists of thermal cracking through incineration. Written records regarding collection and disposal of listed refrigerants must be kept by the disposal firm for three years.

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Alternative Refrigerants

The Regulation allows the listed refrigerants to be used in cooling units produced before 1 January 1992 (greater than five kg refrigerant) or 1 January 1995 (less than five kg refrigerant) until the German Federal Environmental Agency (Umweltbundesamt) publishes an alternative refrigerant with a lower ozone-depleting potential. Published alternatives are discussed below.

- Alternative refrigerants for R12 were published on 21 December 1995. A grace period of 30 months was given for substituting the alternative refrigerants R134a or R22. Thus, since 21 June 1998, servicing (“topping off”) equipment with R-12 has not been allowed. This includes virgin and recycling material. Hermetically sealed, plug-in units in operation before 1 January 1995 which contain less than 1 kg of R12 are excluded. They may be operated and refilled with R12 until final decommissioning.
- Substitutes for R502 were proclaimed on 23 April 1999. Instead of R502, the refrigerants R404a, R407a, R407b, R507, a mixture of R32/R125/R143a, or any other refrigerant with a lower ozone depleting potential than R502 may be used. No grace period was stated. Therefore, since 23 April 1999, servicing equipment with R502 has not been allowed. This includes virgin and recycling material. Compact, prefabricated heat pumps with an output of less than 25 KW are exempt. They may be operated and refilled with R502 until decommissioning.
- Substitutes for R22 have not yet been published. According to German law, therefore, cooling units produced and taken into operation before 1 January 2000 may be used and refilled with R22 until decommissioning.

All alternative refrigerants used within the 411th BSB have been published by the German Federal Environmental Agency, and are within the criteria listed above.

4.3.2 European Council Regulation No. 3613/00

European Council Regulation No. 3613/00 became effective in October 2000 and is mandatory for all members of the EU. This regulation addresses eight groups of chemicals, for which differing degrees of restrictions are proclaimed. Groups I and II are chlorofluorocarbons; Group III are halons; Group IV is carbon tetrachloride; Group V is 1,1,1-trichloroethane, Group VI is methyl bromide, Group VII is hydrobromofluorocarbons, and Group VIII is Hydrochlorofluorocarbons. All substances in Groups I to VI are Class I ODCs. Group VII consists of 34 hydrocarbons with various bromine and fluorine substitutes. Group VIII consists of 38 HCFCs, which include all the Class II ODCs. In general, the EU regulation is not more stringent than the German *FCKW-Halon Verbotsverordnung*. Pertinent details are discussed below.

Article 4, paragraph 1, states that, the use of ODCs (Groups I-V) for military purposes will be temporarily allowed until 31 December 2008. This will apply to existing military applications where it is demonstrated that for a particular use, technically and economically feasible alternative substances or technologies are not available or cannot be used. This temporary exemption may be granted if requested by the Authorities of an EU member country.

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Additionally, Article 4, paragraph 4(iii) states that the use of ODCs (Groups I-V) will be allowed until 31 December 2000 for the maintenance and servicing of refrigeration and air-conditioning equipment.

A step-by-step time frame is given in Article 5, paragraph 1(c)(i-v) for the phase-out of hydrochlorofluorocarbons (HCFCs), Group VIII (e.g., R22). This time frame is described below:

- HCFCs shall be prohibited as refrigerants in equipment produced after 31 December 1995 for: non-confined direct-evaporation systems; in domestic refrigerators and freezers; in motor vehicle, tractor and off-road vehicle or trailer air conditioning systems operating on any energy source, except for military uses where the prohibition shall enter into force on 31 December 2008; in road public-transportation air-conditioning; and in rail transport air-conditioning equipment produced after 31 December 1997.
- HCFCs shall be prohibited from 1 January 2000, in equipment produced after 31 December 1999 for the following uses: in public distribution cold stores and warehouses; and equipment of 150kW and over, shaft input.
- The use of HCFCs shall be prohibited as refrigerants from 1 January 2001 in all other refrigeration and air-conditioning equipment produced after 31 December 2000 except for: fixed air-conditioning equipment, with a cooling capacity of less than 100kW, where the use of HCFCs shall be prohibited from 1 July 2002 in equipment produced after 30 June 2002; and in reversible air-conditioning/heat pump systems where the use of HCFCs shall be prohibited from 1 January 2004 in all equipment produced after 31 December 2003.

The use of virgin HCFCs shall be prohibited in the maintenance and servicing of any refrigeration and air-conditioning equipment after 1 January 2010. The use of any virgin or **recycled** HCFCs shall be prohibited after 1 January 2015.

5.0 RECOVERY AND TURN-IN

“All CFC refrigerant in serviced equipment must be recovered before the equipment is retired. It is needed for the continued operation of CFC equipment on your installation. If in excess to your requirements, it is needed by the Army ODC Reserve.”
ACSIM Memorandum 3 July 1997

The 411th BSB has no installed halons to recover; however, Class I CFCs R12 and R502 remain in much refrigeration equipment throughout the BSB. Army and current USAREUR policy requires the recovery and turn-in of all installed CFCs. Whether Army personnel or a contractor recovers the CFCs, the CFCs should not leave Army ownership. Current procedures are such that when the equipment requires replacement or retrofitting, the CFC is removed and the contractor disposes of it in accordance with German requirements. It does not stay under Army ownership. USAREUR policy requires that recovered Class I CFCs be shipped to the Army ODC Reserve in Germersheim. In the future, all recovered Class I CFCs will be shipped to the ODS Reserve and a record of ODC recovery will be kept in Table 5-1. Since the recovered CFCs will remain within Army ownership, the shipment of recovered CFCs to the ODS Reserve will not be in violation of host nation laws.

The DOD ODS Reserve is managed by Defense Logistics Agency (DLA) through the Defense Supply Center, Richmond (DSCR) and includes an OCONUS collection point at Defense Distribution Depot Europe (DDDE)-Germersheim, Germany. No authorization is required to turn ODCs into the Army ODC Reserve. Government recovery cylinders are available free of charge through DSCR. DSCR will also cover turn-in shipping costs that exceed \$250 by forwarding a MIPR to the shipping unit. All containers must be packaged, labeled and transported in compliance with all applicable requirements. Details of the DOD ODS turn-in procedures are provided in the Appendix.

There are several ways to store the CFCs until they can be sent back to the Army ODC Reserve. Often the best way is for the contractor to store the CFC cylinders. As long as adequate management and documentation is performed, the CFCs still remain in Army ownership. Alternatively, the CFC cylinders may be stored on post in a compressed gas cylinder storage area.

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Table 5-1: ODC Recovery Record											
ODC	From Bldg	Container NSN	Container Size	No. Containers	Total Lbs/Kgs	Excess Yes/No	Storage Location	Storage POC	Lbs/Kg Left	Recovery Date	Transfer Document No.

6.0 MANAGEMENT

“Army policy dictates that all ODC equipment must be replaced within the next five years. The need to prepare now for the absence of these chemicals is obvious. Failure to do so will result in an adverse impact on Army readiness.”

ACSIM Memorandum 3 July 1997

Proper planning is the key to eliminating all Class I ODCs from the BSB by the target date of 1 October 2003. Competition for funding requires the successful installation to aggressively prioritize projects, choose alternatives, and develop schedules.

6.1 Project Prioritization

Halon projects should be prioritized based on the mission of the equipment the fire suppression system is protecting. The 411th BSB has already successfully eliminated all installed halon from the installation. It can therefore focus its attention on the elimination of CFCs.

The prioritization of CFC projects is less mission-oriented than for halon projects. The factors considered are listed here in order of descending importance:

- 1) Compliance with applicable leak limits
- 2) Type of refrigerant used
- 3) Amount of refrigerant used
- 4) Condition of equipment

As described in Section 4, U.S. regulations limit the amount of ODC refrigerant that a piece of equipment may annually leak, depending on its age and type. German regulations, however, have no equivalent permissible leak rates. If an approved alternative has not been published, the equipment may be used and serviced until final decommissioning. If an approved alternative has been published (as in the case of R12 and R502), no refill is allowed; thus, no leak rate is acceptable.

“Cascading” of CFC refrigerants is a method commonly employed in the U.S. to keep equipment running longer. It consists of maintaining operating equipment with the CFCs recovered from retired equipment. Due to Host Nation restrictions on filling equipment with CFC refrigerants, this practice is not viable in Germany.

At the time of the June 2000 inventory no equipment could be identified as leaking Class I ODCs within the 411th BSB. This was determined by interviews with 411th BSB maintenance personnel, who service the refrigeration equipment.

Since no equipment was identified as leaking within the 411th BSB, other factors have been taken into consideration for the prioritization of equipment containing Class I ODCs. These factors include the general condition and age of the equipment and what type of Class I ODC it contains. Refrigeration equipment that is in poor shape or not working, and/or is over twenty years old shall have first priority for replacement. Equipment in better condition and newer, will be given the next priority, and so forth. Since R12 has a higher ozone depleting potential

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and it was phased out before R502, equipment containing R12 has been given a higher priority. Equipment containing the greater amount of refrigerant has also been given a higher priority. In the future should any equipment containing a Class I ODC begin to leak, it will receive first priority for replacement or repair.

In the June 2000 inventory a total of ninety-four refrigeration units were identified as containing Class I ODCs. Of these units, eighty-eight contain R12, five contain R502, and one unit contains both R12 and R502. Six units have been identified as needing replacement, repair or removal; all six of these units contain R12. Costs for replacement, repair or removal are estimated to be \$9,796.

A prioritized list of CFC equipment, along with the replacement cost estimates, is provided in Table 6-1. The cost estimates were developed using information from vendors with current GSA contracts.

6.2 ODC Alternatives

Army policy states that you must have EPA SNAP approval and a toxicity clearance from the Army Surgeon General before you can use an ODC alternative. In Germany, ODC alternatives must be published by the Federal Environmental Agency.

Several ODC alternatives are used within the 411th BSB. These alternatives consisted of R22, R134A, R404A, R408A, and R409A. The alternatives R22, R134A, R404A, R408A have received EPA SNAP approval, R409A does not. As of August 2000 the alternative refrigerants R22, R134A, R401A, R401B, R402A and R404A have received toxicity clearance from the Army Surgeon General for the following uses: facilities air-conditioning and refrigeration, refrigeration systems and commercial refrigeration. All alternative refrigerants used within the BSB have been published by the German Federal Environmental Agency, and meet the guidelines therein.

The halon systems at the 411th BSB have been replaced with a variety of alternatives. Manual intervention (e.g., hand-held fire extinguisher) and water sprinkler systems are the most common. Generally, computer rooms and control centers have switched to manual intervention and the flight line hangers have switched to water sprinkler systems. In addition, Ansul systems have replaced many of the halon systems in the kitchens.

6.3 Scheduling

The replacement schedule for existing ODC equipment at the 411th BSB is provided in Table 6-2. The BSB will develop the schedule based on the availability of funding.

Table 6-3 lists the remainder of the Class I CFC equipment inventoried. At the time of the field survey, this equipment has been identified as being compliant with Host Nation laws. Should any of this equipment begin to show signs of refrigerant leakage, i.e., does not chill as effectively, or the compressor requires replacement, the equipment is no longer in compliance and will need to be replaced or retrofitted with an approved alternative.

Table 6-1: CFC Project Estimates

Table 6-2: CFC Replacement Schedule

Table 6-3: Class I CFC Equipment Not Yet Programmed

7.0 RESOURCES

“Each installation shall continue to develop plans and budget for the retrofit or replacement of existing halon 1301 fire suppression systems and equipment utilizing CFCs as a refrigerant.”

DASA (ESOH) Memorandum 18 October 1994

In order to meet the BSB goal of eliminating Class I ODCs by 2003, all equipment identified in Table 3-2 has been evaluated for planning and budgeting purposes. The ODC Elimination Team has four different sources of funding potentially available for ODC replacement projects. Each source has been evaluated for applicability to the equipment items in the inventory. These sources and the extent to which the BSB plans on utilizing them for execution of the ODC projects are described below.

7.1 Installation Real Property Maintenance Account (RPMA) OMA Funds

These funds are available for the replacement of installed equipment that is beyond its useful service life. As shown in the inventory in Section 3, some of the refrigeration equipment containing Class I ODCs at the BSB may be at or nearing the end of its useful service life. This obsolete equipment may only be minimally serviced and can be replaced as it breaks down. It will not be refilled with Class I ODCs.

The ODC Elimination Team will routinely evaluate the equipment listed in Table 6-3 for obsolete items and will petition the Commander for RPMA funds with which to replace them, as applicable.

7.2 Installation Environmental OMA Funds

These funds, managed through the Army Environmental Program Requirements (EPR) process, are available to ensure compliance with environmental regulations. They may also be used when the replacement can be identified as a pollution prevention (P2) project with a payback of five years or less. Current EPR guidance directs that environmental funds shall not be used for the routine replacement of ODC equipment that are required due to the end of the equipment's useful service life; mechanical failure, accident, or abuse; building renovation; or to upgrade or enhance capacity/performance. It further directs that these non-environmental projects be reported in the EPR database, however, for the purpose of identifying and tracking ODC elimination on Army installations.

As discussed in Sections 4 and 6, U.S. regulations limit the amount of ODC refrigerant that a piece of equipment may annually leak, whereas German regulations essentially prohibit servicing of any equipment that contains R12 or R502. Thus, all equipment containing R12 or R502 that requires service or has recently been serviced with additional R12 or R502 is considered eligible for environmental funds. These projects are identified in the EPR as Class I ESDP – Established Standard and Deadline Passed. The funding appropriation and account is O&M Army (MDEP VENC).

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Starting in FY 2001, the ODC Elimination Team will routinely compile project information yearly on all refrigeration equipment requiring service with additional R12 or R502. Replacement of this equipment will be entered as Class 1 projects in the EPR report. The tables in Section 6 will be updated to reflect the changing status of the equipment. A report detailing this information will be presented to the 26th ASG.

7.3 Unit Specific Funds

Unit funding is unlikely since no operationally oriented projects have been identified; however, the ODC Elimination Team will actively pursue any unit specific funds that may become applicable.

7.4 Special Program Funds

Special program funds are available in the areas of energy efficiency and greenhouse gas reductions. Energy savings projects are most applicable to large equipment such as building chillers, which have significantly improved energy efficiency in recent years. No Class I ODC-containing equipment, for which significant efficiency improvements have been made, was identified during the field survey; however, the ODC Elimination Team will actively pursue any special program funds that may become applicable.

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ACRONYMS

AAFES	Army/Air Force Exchange Service
ACSIM	Assistant Chief of Staff for Installation Management
ASA	Assistant Secretary of the Army
ASG	Area Support Group
BSB	Base Support Battalion
CFCs	Chlorofluorocarbons
CFR	Code of Federal Regulations
DSCR	Defense Supply Center Richmond
DDDE	Defense Distribution Depot Europe
DDRV	Defense Depot Richmond Virginia
DeCA	Defense Commissary Agency
DLA	Defense Logistics Agency
DoD	Department of Defense
DoDAAC	DoD Activity Address Code
DoDDS	Department of Defense Dependent Schools
DPW	Directorate of Public Works
DRMO	Defense Reutilization Marketing Office
EPA	Environmental Protection Agency
EPR	Environmental Program Requirements
ESDP	Established Standard and Deadline Passed
FISC	Fleet Industrial Supply Center
FSC	Federal Supply Classes
FCKW	Fluorchlorkohlenwasserstoffe (English Equiv. is CFC)
FGS	Final Governing Standards
GFE	Government Furnished Equipment
GSA	General Services Agency
HCFCs	Hydrochlorofluorocarbons
IMDC	International Maritime Dangerous Goods Code
MACOM	Major Command
MDEP VENC	Management Decision Package Highly Visible Environmental Compliance
MEDCOM	Medical Command
MI	Military Intelligence
MILSTRIP	Military Standards Requisitioning and Issue Procedures
MIPR	Military Interdepartmental Purchase Request
NSN	National Stock Number
ODCs	Ozone Depleting Chemicals
ODS	Ozone Depleting Substance
OCNUS	Outside the Continental United States
O&M	Operating and Maintenance
OMA	Operating and Maintenance Account
POC	Point of Contact
RPMA	Real Property Maintenance Account
SES	Senior Executive Service
SNAP	Significant New Alternatives Policy (EPA)
SOFA	Status of Forces Agreement
USAREUR	U.S. Army Europe

APPENDIX

DoD ODS TURN-IN PROCEDURES

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

PREFACE

DLA is assigned the mission of managing the Army Reserve of Ozone Depleting Substances to ensure that the supplies for mission critical uses are available. DLA provides central management for the receipt, storage and issuance through DSCR, which is the DLA activity that manages ODSs. DDRV is the initial storage site.

It is imperative that you turn in to the ODS Reserve the following excess CFCs and halons: **CFC's-11, 12, 114, 500, 502, and Halons - 1202, 1211, 1301**. The ODS Reserve accepts both used and new CFCs and halons in a relatively pure state (i.e. not as a component of other products). These chemicals may have been purchased under Federal Supply Classes (FSC) 6830 and 4210, or from a commercial source. Solvent CFC -113 (Type I & II) and 1,1,1 trichloroethane (FSC 6850 and 6810) can also be turned in to the ODS Reserve provided their containers are sealed and unopened.

Section 1 provides procedures on how to turn-in excess ODS. **Section 2 provides guidance for European turn-ins to the collection site at Germersheim, GE** and Pacific theater turn-ins to the collection site at Pearl Harbor, HI. Section 3 lists the National Stock Numbers (NSNs) assigned to ODS turned in to the ODS Reserve and associated recovery cylinders. Section 4 lists the names of the chemicals in the ODS Reserve.

For questions concerning requisitions and stock availability, contact Ms. Audrey Studevant, DSCR-JDSA, DSN 695-3756 or (804) 279-3756. Procedural concerns may be addressed to Mr. Steve Minus, DSCR-RP, DSN 695-5203 or (804) 279-5203.

SECTION 1: GENERAL ODS TURN-IN INFORMATION

I. Procedures

A. No authorization/pre-notification to the item manager or ODS Program Office is required when turning in ODS to the Reserve.

B. The ODS Reserve accepts all containers, to include cylinders, fire extinguishers, drums, spheres, and canisters. Government recovery cylinders are available free of charge through DSCR and can be requisitioned through normal MILSTRIP procedures. Only these cylinders should be used for recovering ODS from systems. The government cylinders used for recovering CFC refrigerants are painted

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DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

orange, and halons red. Both have yellow tops and dual port (two valves) to distinguish them from standard spec single port valve gas cylinders.

- C. Turned in ODS containers must be tagged/labeled as follows:
1. The shippers DoD Activity Address Code (DoDAAC).
 2. The shipping activity with POC and phone number.
 3. The NSN of cylinder(s) containing the recovered ODS (see Section 3).
 4. Type of ODS (i.e., Halon 1301 or CFC-12).
 5. The quantity of containers on the pallet or within the shipping crate.
 6. Packaged and labeled in compliance with DOT regulations.

Note: When multiple containers (cylinders, drums, spheres, canisters, or fire extinguishers) with the same NSN are shipped in palletized or in a box/crate, apply only one tag/label to the shipment, not to each item.

D. Fire suppression system cylinders and canisters with electrical charges or initiators must be deactivated prior to shipment to the ODS Reserve. Also, safety caps must be used to cover exposed actuation mechanisms and discharge ports on these special cylinders, otherwise dangerous safety situations could arise during the shipping, receiving, or storage process. Local fire protection equipment companies can provide safety services. Special handling procedures for Halon system cylinders are provided later in Section 1. If further guidance is needed, contact Mr. Joe Schmierer of the ODS Reserve Program Office at DSN 695-5202 or (804) 279-5202.

E. Monetary credit will not be given for turned in ODS or cylinders. However, ownership credit will always be given to the Army for the pounds of ODS turned in. ODS can be requisitioned from the ODS Reserve by Army-authorized activities.

F. Empty spec cylinders must be turned in to the ODS Reserve. Spec gas empty cylinders (see Section 3 for applicable NSNs) should not be used for recovery purposes. Spec gas cylinders will be refurbished and refilled with product for future applications. Empty recovery cylinders not expected to be used must also be returned to the ODS Reserve.

1. G. Solvent CFC-113 and 1,1,1 trichloroethane when turned in must be in their original containers in which the seal has never been broken.

H. Burnt out or mixed reserve products can be turned in to the ODS Reserve. Clearly identify the chemical by defining its components (i.e. R-12 & R-502).

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DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

- I. The following items should not be turned in to the ODS Reserve:
Empty fire extinguishers (with the valves removed)
 2. Empty commercial containers
 3. Aerosol cans with Reserve chemicals
 4. Dry chemicals
- II. Transportation Guidance
 - A. When shipping ODS refer to the following regulations if needed:
 1. MIL-STD-129L, Military Standard Marking for Shipment and Storage.
 2. DLAR 4145.25, Storage and Handling of Compressed Gases and Liquids in Cylinders, and of Cylinders or the following applicable Service regulation:
 - (a) AR-700-68
 - (b) NAVSUPINST 4440.128C
 - (c) MCO 10330.2C
 - (d) AFR 67-12
 3. Code of Federal Regulations 49.173 (particularly 173.301), Requirements for the Shipment of Compressed Gas Cylinders.
 - B. Transportation cost assistance can be provided for shipments costing \$250.00 or greater. This cost assistance is strictly for transporting ODS and not for packing costs. For transportation cost assistance, fax the following data to Mr. Steve Minus at (804) 279-4970 or DSN 695-4970:
 1. Type and quantity of ODS
 2. Total weight of shipment
 3. The shipping cost
 4. Requesting facility and point of contact
 - C. Turn-ins should be forwarded to the following address:

DEFENSE DEPOT RICHMOND VIRGINIA (DDRV)
SW0400
CYLINDER OPERATIONS
8000 JEFFERSON DAVIS HIGHWAY
RICHMOND, VA 23297-5900
 - D. If your activity is personally transporting ODS to the Reserve, be sure to schedule your delivery with the DDRV Dispatch Office at DSN 695-3834 or (804) 279-3834.

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

Special Handling Procedures for Turning in Halon 1301 System Cylinders

A. Halon 1301 is typically incorporated into built-in fire suppression systems applications with the charged Halon cylinder connected to the system piping. Because the Halon is over pressurized with nitrogen to facilitate distribution, these system cylinders are usually disconnected from the system and used as the transportation cylinder to return the product to the Reserve as the systems are taken out of service. However, fire suppression system cylinders and canisters with electrical charges or initiators must be deactivated prior to shipment to the Defense Reserve. Special care should be taken when deactivating and disassembling the systems. The valves on these cylinders are designed in a manner that upon activation, they are changed instantly from a closed position to a fully open position and will dispense the Halon in under 10 seconds. The combination of these sensitive valves and the high pressure within the cylinders require compliance with good safety practices.

B. Instructions for dismantling a Halon Fire Suppression System are provided as follows:

1. The first step is to deactivate the actuation system, which is usually electrical or pneumatic. However, disconnection from the electrical or pneumatic source is not sufficient from a safety standpoint. In the case of pneumatic systems, there is often still a small pin exposed that must be covered with a safety cap before handling. Just the slightest touch on this pin could cause full activation of the valve. In the case of electrically activated valves, simple disconnection of the electrical leads to the solenoid valves is acceptable. However, if the electrical connection is to an explosive initiator, it is very important to remove the initiator. This is a very important safety practice, because static electricity can cause the explosive to detonate. These actions should be done before any other dismantling is initiated.

2. The next step is to disconnect any discharge piping from the discharge port. Immediately upon disconnection of the piping, install an anti-recoil device (discharge port safety cap). Safety caps should be used to cover exposed actuation mechanisms and discharge ports on these special cylinders, otherwise dangerous safety situations could arise during the shipping, receiving, or storage process. Application of manufacturer's designed and supplied caps are the proper safety practice. In some cases the threads are not exactly the same as pipe threads and may not hold under pressure of release. However, if pipe caps, plugs or plates are substituted for manufacturer's caps, at least port opposing holes must be drilled in the anti-recoil cap, plug or plate to disperse any release of the Halon if the valve inadvertently activates. Anti-recoil device safety caps/plugs/plates must always be in place before handling the cylinders.

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

3. Adherence with the above safety practices is paramount before removing any cylinders from the mounting positions. Once the safety devices are in place, cylinders can be moved with relative safety. However, these are high-pressure compressed gas cylinders and require all the safety handling practices of any other gas cylinder. Also, protective safety wear is required for personnel deactivating cylinders.

SECTION 2: PROCEDURES FOR OVERSEAS COLLECTION SITES**Defense Distribution Depot Europe (DDDE) Germersheim, Germany**

- I. The primary turn-in site for the ODS Reserve is located at DDRV. However, a collection site has been established at Germersheim, GE for European bases. This is not a mini-Reserve, only a collection site. The following procedures apply:
- II. Only halon and refrigerant products will be accepted. Of you have other eligible items, please contact Mr. Steve Minus at (804) 279-4970 or DSN 695-4970.
- III. Turn-in procedures:
 - A. All ODS containers being shipped to DDDE-Germersheim will be coordinated in advance through the Transportation Office by telephoning 378-3733/3618 or civilian 07274-58733/58618. DDDE receives ODS on Mondays and Tuesdays. If units cannot turn in on these days, special accommodations will be made.
 - B. All types of ODS containers will be accepted to include cylinders, fire extinguishers, drums, spheres, and canisters. The exception is aircraft specific halon canisters, which should be returned through the airframe maintenance channels. Government recovery cylinders are available free of charge through DSCR for ODS turned in and can be requisitioned through the normal MILSTRIP procedures. The government cylinders used for recovering CFC refrigerants are painted orange, and halon red. Both have yellow tops and dual port (two valves) to distinguish them from single port valve standard spec gas (virgin) cylinders.
 - C. All ODS containers being turned in to DDDE-Germersheim must have the following information attached:
 1. The shipper's DoD Activity Address Code (DoDAAC).
 2. The shipping activity with POC and phone number.
 3. The NSN of cylinder(s) containing the recovered ODS (see Section 3).
 4. Type of ODS (i.e., Halon 1301 or CFC-12).
 5. The quantity of containers on the pallet or within the shipping crate.

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

Note: When multiple containers (cylinders, drums, spheres, canisters, or fire extinguishers) with the same NSN are shipped palletized or in a box/crate, apply only one tag/label to the shipment, not to each item. Pallets must contain items of the same type (i.e., cylinders, drums, canisters, etc.). Boxed/crated loads may contain different size containers, but should contain the same type of product, and must note on the exterior that multiple NSNs are within.

D. Fire suppression system cylinders and canisters with electrical charges or initiators must be deactivated prior to shipment to DDDE. Also, safety caps must be used to cover exposed actuation mechanisms and discharge ports on these special cylinders, otherwise dangerous safety situations could arise during the shipping, receiving, or storage process. Local fire protection experts can provide safety services. Special handling procedures for halon system cylinders are provided in Section 1. If further guidance is needed, contact Mr. Joe Schmierer of the ODS Reserve Program Office in Richmond, VA at DSN 695-5202 or (804) 279-5202.

E. Monetary credit will not be given for turned in ODS or cylinders. However, ownership credit will always be given to the Army for the pounds of ODS turned in. ODS can be requisitioned from the ODS Reserve by Army-authorized activities.

F. The following procedures must be followed:

1. Units with leaking containers must transfer the ODS into proper storage containers before shipment to DDDE-Germersheim. If guidance is needed, please call one of the DDDE-Germersheim POCs as provided in paragraph H of this section.

2. Cylinders must be banded together in an upright position, using a wooden collar, on wooden pallets using metal/steel-banding material or secured in a wooden crate.

3. Halon fire extinguishers/system cylinders must have safety pins installed and secured to prevent accidental release. Safety caps will be installed on all cylinders.

4. DD Form 1348-1 must be the document used to turn in ODS cylinders, with the address shown in paragraph G.4.

5. The cargo vehicle (truck/trailer) must have the means for forklift off-loading (removable side rails, etc.). Containers must not be off-loaded by hand.

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

G. Transportation Guidance

1. When transporting compressed gas cylinders with ODS, the following guidelines apply to military and in some cases contracted carriers:

(a) Military carriers must be in compliance with USAREUR Regulation 55, USAFE Regulation 75, the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), and the equivalent in Germany (GGVS).

(b) Any shipment performed by U.S. military and military vehicles will require driver training and certification, inspection requirements of vehicles, and other requirements as mandated by regulation.

(c) Shipments coming from outside of Germany must be in compliance with exporting and importing country requirements.

(d) Shipments performed over water must be in compliance with the International Maritime Dangerous Goods Code (IMDG).

2. For units in Germany without appropriate transportation capability, transportation services for ODS to the new collection point at DDDE will be made through DRMO disposal contracts commencing 1 May 1997. Units that want to utilize this service are required to provide a separate DD Form 1348-1 to fund transportation, and shall contact the servicing DRMO for instructions. DRMS will monitor shipments for regulatory compliance.

3. Transportation cost assistance can be provided for shipments costing \$250.00 or greater. This cost assistance is strictly for transporting DS and not for packing costs. The \$250.00 minimum transportation cost assistance applies to shipping ODS from the overseas base to DDDE. Shipments from the consolidation point will be funded by the ODS Reserve for transporting ODS to the United States. For transportation cost assistance fax the following data to Mr. Steve Minus at (804) 279-4970 or DSN 695-4970:

- (a) Type and quantity of ODS
- (b) Total weight of the shipment
- (c) The shipping cost
- (d) Requesting facility and point of contact

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

4. Turn-ins originating in Europe, except for the United Kingdom, should be forwarded to the following consolidation point:

SWE300
DEFENSE DISTRIBUTION DEPOT EUROPE
BUILDING 7886
U.S. DEPOT GERMERSHEIM
GATE 2
76726 GERMERSHEIM

H. Points of contact at Germersheim are:

Richard Hawkins DSN 378-3533 07274-58-533

SFC Pretlow DSN 378-3733 07274-58-733

Peter Wuerschke DSN 378-3729 07274-58-729

After duty hours, contact gate guards at 378-3678. Security guards have the home telephone numbers of the designated personnel.

Fleet and Industrial Supply Center (FISC), Pearl Harbor, Hawaii

I. The primary turn-in site for the DoD ODS Reserve is located at DDRV in Richmond, VA. However, a collection site has been established at Pearl Harbor, HI. This site is not a mini-Reserve, only a collection site. The following procedures apply.

II. Only halon and refrigerant products will be accepted. Of you have other eligible items, please contact Mr. Steve Minus at (804) 279-4970 or DSN 695-4970.

III. Turn-in procedures:

A. Deliveries will be accepted Monday through Friday, 0800-1400 (except holidays). Advance notification is not required on quantities of four (4) pallets or less. For quantities greater than four pallets, a delivery schedule should be coordinated in advance with FISC Pearl Harbor, Code 302, telephone (808) 474-3770. Any other special accommodations should be coordinated at the same number.

B. All types of ODS containers will be accepted to include cylinders, fire extinguishers, drums, spheres, and canisters. The exception is aircraft specific halon canisters, which should be returned through the airframe maintenance channels. Government recovery cylinders are available free of charge through DSCR for ODS turned in and can be requisitioned through the normal MILSTRIP procedures. The government cylinders used for recovering CFC refrigerants are painted orange, and halon red. Both have yellow tops and dual port (two valves) to distinguish them from single port valve standard spec gas (virgin) cylinders.

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

C. All ODS containers being turned in to FISC Pearl Harbor must have the following information attached:

1. The shipper's DoD Activity Address Code (DoDAAC).
2. The shipping activity with POC and phone number.
3. The NSN of cylinder(s) containing the recovered ODS (see Section 3).
4. Type of ODS (i.e., Halon 1301 or CFC-12).
5. The quantity of containers on the pallet or within the shipping crate.

Note: When multiple containers (cylinders, drums, spheres, canisters, or fire extinguishers) with the same NSN are shipped palletized or in a box/crate, apply only one tag/label to the shipment, not to each item. Pallets must contain items of the same type (i.e., cylinders, drums, canisters, etc.). Boxed/crated loads may contain different size containers, but should contain the same type of product, and must note on the exterior that multiple NSNs are within.

D. Fire suppression system cylinders and canisters with electrical charges or initiators must be deactivated prior to shipment to FISC Pearl Harbor. Also, safety caps must be used to cover exposed actuation mechanisms and discharge ports on these special cylinders, otherwise dangerous safety situations could arise during the shipping, receiving, or storage process. Local fire protection experts can provide safety services. Special handling procedures for Halon system cylinders are provided in Section 1. If further guidance is needed, contact Mr. Joe Schmierer of the ODS Reserve Program Office in Richmond, VA at DSN 695-5202 or (804) 279-5202.

E. Monetary credit will not be given for turned in ODS or cylinders. However, ownership credit will always be given to the Army for the pounds of ODS returned to the ODS Reserve. ODS can be requisitioned by Army-authorized activities.

F. The following procedures must be followed:

1. Units with leaking containers must transfer the ODS into proper storage containers before shipment to DDDE-Germersheim. If guidance is needed, please call one of the DDDE-Germersheim POCs as provided in paragraph H of this section.

2. Cylinders must be banded together in an upright position, using a wooden collar, on wooden pallets using metal/steel-banding material or secured in a wooden crate.

3. Halon fire extinguishers/system cylinders must have safety pins installed and secured to prevent accidental release. Safety caps will be installed on all cylinders.

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

4. DD Form 1348-1 must be the document used to turn in ODS cylinders, with the address shown in paragraph G.4.

5. The cargo vehicle (truck/trailer) must have the means for forklift off-loading (removable side rails, etc.). Containers must not be off-loaded by hand.

G. Transportation Guidance

1. When transporting compressed gas cylinders with ODS, the following guidelines apply to military and in some cases contracted carriers:

(a) Shipments coming from outside of Hawaii must be in compliance with exporting and importing country requirements.

(b) Shipments performed over water must be in compliance with the International Maritime Dangerous Goods Code (IMDG).

2. Transportation cost assistance can be provided for shipments costing \$250.00 or greater. This cost assistance is strictly for transporting ODS and not for packing costs. The \$250.00 minimum transportation cost assistance applies to shipping ODS from the Hawaiian or Pacific base to the consolidation point. Shipments from the consolidation point will be funded by the ODS Reserve for transporting ODS to DDRV, Richmond, VA. For transportation cost assistance fax the following data to Mr. Steve Minus at (804) 279-4970 or DSN 695-4970:

- (a) Type and quantity of ODS
- (b) Total weight of the shipment
- (c) The shipping cost
- (d) Requesting facility and point of contact

3. Turn-ins originating in the Pacific region should be forwarded to the following consolidation point:

N00604
FLEET AND INDUSTRIAL SUPPLY CENTER
BOX 300
CODE 302/BLDG 1762
PEARL HARBOR, HAWAII 96860-5300

H. Point of contact at FISC Pearl Harbor is Stan Sousa, (808) 474-4076.

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

SECTION 3: NSNs**EMPTY RECOVERY CYLINDERS**

COMMODITY	EMPTY RECOVERY SIZE (LBs)	CYLINDER NSNs
<u>HALONS</u>		
Halon 1202	160	8120-01-356-1781
Halon 1211	200	8120-01-356-1248
Halon 1211	1500	8120-01-356-1249
Halon 1301	117	8120-01-371-0533*
*DENOTES A HIGH-PRESSURE CYLINDER OF 600 PSI PLUS		
<u>REFRIGERANTS</u>		
R-11	59	8120-01-356-5960
R-11	170	8120-01-356-9756
R-11	1400	8120-01-355-9763
R-12	45	8120-01-355-4017
R-12	145	8120-01-355-4018
R-12	1190	8120-01-355-4019
R-114	57	8120-01-356-1245
R-114	165	8120-01-356-1246
R-114	1360	8120-01-356-1247
R-500	43	8120-01-357-6774
R-500	127	8120-01-357-7656
R-500	1045	8120-01-357-7657
R-502	44	8120-01-357-6770
R-502	128	8120-01-357-6771
R-502	1050	8120-01-357-6769

EMPTY SPEC GAS (VIRGIN) PRODUCT CYLINDERS (FOR TURN-INS ONLY)

COMMODITY	EMPTY RECOVERY SIZE (LBs)	CYLINDER NSNs
<u>HALONS</u>		
Halon 1202	160	8120-01-339-6277
Halon 1202	2000	8120-01-371-0532
Halon 1211	200	8120-01-337-2899
Halon 1211	1500	8120-01-396-2165
Halon 1301	137 & 150	8120-00-531-8193
Halon 1301	1123 & 1240	8120-01-356-5961

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

REFRIGERANTS

R-11	59	8120-01-355-9760
R-11	170	8120-01-355-9761
R-11	1400	8120-01-355-9762
R-12	45	8120-01-337-1816
R-12	145	8120-01-337-6242
R-12	1190	8120-01-355-4016
R-114	57	8120-01-354-9400
R-114	165 (49x10)	8120-00-063-3983
R-114	165 (36x12)	8120-01-337-6236
R-114	1360	8120-01-356-1244
R-500	43	8120-01-357-6773
R-500	127	8120-01-357-6772
R-500	1045	8120-01-357-9137
R-502	44	8120-01-357-7655
R-502	128	8120-01-357-6239
R-502	1050	8120-01-357-6907

ODS TURN-INS**COMMODITY****EMPTY RECOVERY
SIZE (LBs)****CYLINDER NSNs****HALONS**

Halon 1202	160	6830-01-356-1780
Halon 1211	1-5	6830-01-376-8013
Halon 1211	6-10	6830-01-376-8014
Halon 1211	11-20	6830-01-376-8015
Halon 1211	21-60	6830-01-376-8016
Halon 1211	61-125	6830-01-376-8017
Halon 1211	126-200	6830-01-356-1209
Halon 1211	201-340	6830-01-376-8018
Halon 1211	341-1500	6830-01-356-1211
Halon 1301	1-5	6830-01-376-8394
Halon 1301	6-10	6830-01-376-8395
Halon 1301	11-20	6830-01-376-8396
Halon 1301	21-70	6830-01-376-8397
Halon 1301	71-100	6830-01-376-8398
Halon 1301	101-117	6830-01-371-0501
Halon 1301	118-125	6830-01-376-8399
Halon 1301	126-150	6830-01-356-9752
Halon 1301	151-200	6830-01-376-8400
Halon 1301	201-260	6830-01-376-8401
Halon 1301	261-350	6830-01-376-8402
Halon 1301	351-530	6830-01-376-8403
Halon 1301	531-600	6830-01-376-8404
Halon 1301	601-1240	6830-01-356-5958

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

REFRIGERANTS

R-11	59	6830-01-355-9754
R-11	170	6830-01-355-9756
R-11	1400	6830-01-355-9758
R-12	45	6830-01-355-4013
R-12	145	6830-01-355-6648
R-12	1190	6830-01-355-4015
R-114	57	6830-01-356-1203
R-114	165	6830-01-356-1205
R-114	1350	6830-01-355-1207
R-500	43	6830-01-357-7650
R-500	127	6830-01-358-5123
R-500	1045	6830-01-357-7654
R-502	44	6830-01-357-6726
R-502	128	6830-01-357-6727
R-502	1050	6830-01-357-6905

DRUMS/CANS CONTAINING CFC SOLVENTS FOR TURN-INS

COMMODITY	DRUM/CAN CAPACITY	DRUM/CAN NSNs
<u>CFC/Solvent 113</u>		
	6 oz	6850-01-424-8532
	1 pint	6850-01-424-8533
	1 quart	6850-01-424-8540
	1 gal/11 lbs	6850-01-424-8531
	100 lbs	6850-01-424-8535
	200 lbs	6850-01-424-8536
	5 gal/60 lbs	6850-01-424-8534
	55 gal/690 lbs	6850-01-424-8537
<u>1,1,1 Trichloroethane</u>		
	6 oz	6810-01-424-8538
	1 pint	6810-01-424-9662
	1 quart	6810-01-424-9665
	1 gal/12 lbs	6810-01-424-8539
	5 gal/60 lbs	6810-01-424-9674
	55 gal/640 lbs	6810-01-424-9673

USAREUR-WIDE OZONE DEPLETING CHEMICAL ELIMINATION PLANS

DoD ODS TURN-IN PROCEDURES (CONTINUED)

(Source: Guide to Preparing Ozone-Depleting Chemical Elimination Plans for Installations, January 1999, Army Acquisition Pollution Prevention Support Office, HQ US Army Material Command)

SECTION 4: CLASS I ODS IN THE ODS RESERVE

<u>CFCs</u>	<u>Chemical Name</u>	<u>Symbol</u>
CFC-11	Trichlorofluoromethane	CFCl ₃
CFC-12	Dichlorodifluoromethane	CF ₂ Cl ₂
CFC-114	Dichlorotetrafluoroethane	C ₂ F ₄ Cl ₂
R-500	Azeotropic mix of R-12 and 1,1,1 Difluoroethane (HFC-152a)	CF ₂ Cl ₂ /C ₂ F ₂
R-502	Azeotropic mix of Chloropentafluoroethane (R-115) and Chlorodifluoromethane (HCFC-22)	CF ₂ Cl/C ₂ F ₅ Cl

Halons

Halon 1202	Dibromodifluoromethane	CF ₂ Br ₂
Halon 1211	Bromochlorodifluoromethane	CF ₂ ClBr
Halon 1301	Bromotrifluoromethane	CF ₃ Br

Solvents

Methyl Chloroform	1,1,1 Trichloroethane	CH ₃ CCl ₃
CFC-113	Trichlorotrifluoroethane	C ₂ F ₃ Cl ₃